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Technology of TV Should Put Viewer Back Into the Picture

THE INFORMATION capacity of a standard television channel equals 5 million characters per second of printed text. In a chapter on "Televistas" in the 1967 report of the Carnegie Commission on educational TV, "Public Television," J.C.R. Licklider outlined technological possibilities of this communication resource.

Apart from judgments as to TV's educational and social value, most of its information potential is now wasted. The pictures on the tube are completely replaced 30 times a second. Theoretically, one could squeeze TV into much narrower channels by tricks for encoding the part of a picture that remains static or flat. But this technology of "bandwidth compression" is so intricate, that we have only begun to use it for such demanding purposes as spacecraft photography, and domestic applications are some years off.

LICKLIDER suggests that we trade off the wasteful cinematic use of the channel in favor of more numerous but static images. For example, the whole text of a 30-page newspaper could be transmitted every second. Existing technology could maintain a newspaper broadcast constantly updated for the latest news. The user's console would switch the page he selects, out of each one-second transmission, onto a persistent display screen for leisurely perusal. "Hard copies," or print on paper, are already available by radio facsimile, but the machinery to make them quickly is likely to remain relatively expensive while the costs of electronic gear move sharply down.

In fact, the world's total information flow in print at the present time is less than the capacity of a single channel. Instant publication would be achievable by broadcasting that flow, together with identification codes, so that selected materials could be stored on each user's tape recorder for replay at leisure. High fidelity audio for voice, music or radio theater takes appreciable spectrum space, but at least 50 audio channels could be bundled into one TV channel on the same basis.

ONE OF THE most stultifying aspects of TV as a cultural phenomenon is the passivity of watching what happens to come in a given program.

We have little opportunity for critical choice based on advance information. And even if we are in the mood for hearing about a given topic, possibly magnificently dramatized, our mood must match the minute and the day of tte telecast. These new technologies begin to show us how to bring the viewer's mind back into the system.

The viewer could also participate actively by being his own director of a telecast. Let different cameras feed into different subchannels, and the viewer can decide whether to follow the nominal program or make his own decisions about close-ups, side angles or freezing a scene. The essential point is to restore the maximum freedom of choice to the individual.

Existing channel capacity for television is essentially exhausted, leaving no room for such innovations without displacing established interests. Cable TV is theoretically open-ended, but the actual systems now being organized will furnish about 20 new channel opportunities for homes in urban areas. Trials of pay TV are a social experiment for new ways of financing programs to satisfy tastes repelled by the prevailing system of mass advertising.

In the current battle for control, the public interest cannot be—and should not be expected to be—fairly represented by the profit-oriented groups, although they do provide the essential drive for development and action. The Federal Communications Commission has the responsibility to direct that drive for the public interest.

In recent years, the FCC has shown a renewed vivacity in questioning squatters' rights and in opening up technological opportunities. In its preoccupations with current tangled conflicts, the FCC should not overlook the need to manage spectrum space so as to hasten new technological antidotes to the present miasma.